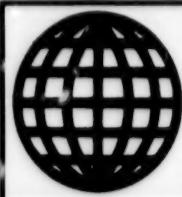


JPRS-TND-89-011

1 JUNE 1989



FOREIGN
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JPRS Report

Nuclear Developments

Nuclear Developments

JPBS-TND-89-011

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China Denies New Daya Bay Plant Plan
51004007 Hong Kong HONGKONG STANDARD
in English 8 Apr 89 p 2

[Article by Ma Miu-wah and Adrian Cheung]

[Text] China has told the British Embassy in Beijing that a rumoured second nuclear power plant at Daya Bay will not be built.

But local legislators still want official confirmation from the Chinese authorities.

The Legislative Council unanimously expressed strong objections to any plan to build a second power plant at Daya Bay at its in-house meeting yesterday before the denial from Beijing came in.

But members reacted by requesting an official statement from China.

Legco's response reflected disquiet in the community which they thought would not be assuaged without a direct answer from China.

The British Embassy took the initiative earlier this week in raising the question with Beijing after strong opposition in Hongkong to the plan by local legislators, academics and community leaders.

The plan was first reported last Thursday when Mr Jiang Shengjie, a technical adviser to the Chinese Nuclear Industry Development Corporation, was quoted as saying the Chinese authorities were considering an initial \$23.4 billion investment in a second power plant at Daya Bay.

But the British Embassy yesterday said those reports were false.

"We understand that the press reports concerning a second power plant in Daya Bay are untrue," Mr Peter Davies, Press Secretary at the Embassy told THE HONGKONG STANDARD yesterday.

Asked whether the decision not to build a second power plant would be firm, Mr Davies said it would be—at least for the moment.

At the in-house meeting, Legco specially raised reports of the proposed extra power plant for discussion and were unanimous in objecting to it.

But the Council had not received the message from the Embassy until Councillor Mr Hui Yin-fat was briefing the press on the outcome of the meeting.

"The message has only just been released by the British Embassy," said Mr Hui. "We hope it will be officially confirmed by the Chinese government."

Mr Hui said senior member of the Legislative Council, Mr Allen Lee Peng-fei had already discussed the question with the Governor Sir David Wilson and the Chief Secretary Sir David Ford.

The controversy was sparked off last Thursday by Mr Jiang, who gave such a detailed account of the plan for a second power plant—including budget, location, date of commissioning and safety plans—that it was understood to be a firm plan.

Mr Jiang said two 1,000 megawatt Soviet pressurised water reactors could be completed at Daya Bay by 1995.

This led a chorus of calls to drop the plan from local members of the Sino-Hongkong Nuclear Safety Consultative Committee, the Joint Conference for the Shelving of the Daya Bay Plant and individual Legislative Councillors.

But a denial from China's Energy Ministry under the State Council three days ago created confusion.

Mr Wang Wenze, spokesman for the Ministry, said it had not asked Guangdong Province to conduct any feasibility studies, nor had it authorised Mr Jiang to announce any plan.

Committee in Dark on 2d Nuclear Plant
51004008 Hong Kong HONGKONG STANDARD
in English 7 Apr 89 p 4

[Article by Adrian Cheung]

[Text] Eight Hongkong members of the Daya Bay Nuclear Safety Consultative Committee yesterday joined the chorus of opposition to a possible second plant being built.

Despite a lack of official information, the members said they opposed a second plant because of the undesirable "psychological impact" on residents.

"The fears of Hongkong people are still there," said the chairman of the 14-member committee, Mr Wong Poyan.

Speaking after an informal working lunch, Mr Wong said Hongkong members of the committee would seek official information from the Hongkong Branch of the Xinhua News Agency, China's highest official representative body in the territory.

Mr Wong said he had approached the agency after the news of a possible nuclear plant at Daya Bay made headlines in the local press but it had failed to reply.

Mr Wong said he would also approach the committee's secretariat at the Guangdong Nuclear Power Joint Venture company for information.

The committee was appointed last August by the company, the developer of the HK\$28.8 billion venture, to advise on safety matters at the plant which is situated 50 kilometres north-east of Hongkong.

Mr Wong said although the terms of reference of the committee were limited, they would pass on the fears of Hongkong residents.

He would be opposed to any other nuclear plants near Hongkong.

Mr Wong said he had still to decide whether to call a full committee meeting before obtaining official information from China, which is conducting feasibility studies to identify a suitable site for the second nuclear plant in Guangdong.

The adviser to the Chinese Nuclear Industry Development Corporation, Mr Jiang Shengjie, said in Beijing that China might build a second plant at Daya Bay.

The Daya Bay nuclear plant is the first joint venture nuclear project in China using foreign technology.

A committee member, Mr Stephen Cheong, who is also a Legislative Councillor, said China needed time to study the operation of nuclear plants.

Mr Cheong's view was shared by Executive and Legislative Councillor Miss Maria Tam, who said yesterday China should delay or shelve the plan.

Miss Tam said China should prove that it was capable of safely operating a nuclear plant in Daya Bay before starting another one.

The Daya Bay nuclear plant is scheduled to generate electricity by 1992.

Meanwhile, the Hongkong Government yesterday said it would assess the plan once China confirmed the site of the second project.

2d Plant Not Welcome Near Territory

51004006a Hong Kong SOUTH CHINA MORNING POST in English 10 Apr 89 p 7

[Article by Andy Ho and S.Y. Yai]

[Text] A second atomic power plant in Guangdong province is acceptable as long as it is built "several hundred kilometres" away from Hong Kong, said Mr Wong Po-yan, who heads a Sino-Hong Kong nuclear safety panel.

Mr Wong, convener of the Daya Bay Nuclear Power Station Nuclear Safety Consultative Committee, said yesterday it was logical and reasonable for the southern Chinese province to develop nuclear power to ease its acute energy crisis.

Various Chinese authorities—the Ministry of Energy Resources, China Nuclear Industry Corporation, the State Council's Hong Kong and Macau Affairs Office and the New China News Agency's local branch—have denied that China had any plan for a second plant at Daya Bay.

However, there is considerable local concern as Guangdong is still working on a feasibility study on where to place another atomic station.

Mr Wong told the City Forum that he would object to any proposal for a second plant at Daya Bay, which is about 30 kilometres northeast of the border.

But Mr Wong added: "International safety regulations only prescribe for a 10-kilometre emergency evacuation zone for a nuclear station. Guangdong is a vast region and has a long coastline."

"It will be acceptable to me if the second nuclear plant is built far away from Hong Kong. Hong Kong people do not need to bother if the plant is to be put up several hundred kilometres away."

The former legislator pledged that his 14-member panel, appointed by the Sino-Hong Kong developer of the first Daya Bay scheme, would continue to monitor Guangdong's nuclear developments.

Mr Wong said he would urge the Chinese authorities not to build a second nuclear plant in the vicinity of Hong Kong.

"Local anxieties over the present Daya Bay plan have hardly subsided. Some people even say they are emigrating because of the nuclear station. No more nuclear plants should be built in close proximity to Hong Kong," he added.

A 117-group anti-nuclear lobby—the Joint Conference for the Shelving of the Daya Bay Nuclear Plant—also said it would be acceptable if the proposed plant was far from populated areas.

"Given the dense populations in Hong Kong and Guangzhou, it is undesirable to build any more nuclear stations near the cities," said a leader of the coalition, Mr Anthony Ha Man-ho.

Asked what would be an acceptable distance to them, Mr Ha said they would seek international expert opinions after a site had been named by the Guangdong authorities for its proposed second nuclear plant.

The forum was held a day after the Chinese Ministry of Energy Resources' press conference in Beijing at which a spokesman gave an assurance that a second Daya Bay nuclear plant was not included in its program up to the year 2000.

A Ministry spokesman, Mr Wang Wenze, said Guangdong authorities had not received any application for a second plant.

Mr Wang said: "Given the lack of energy resources in Guangdong, it is normal for it to engage in active research and debates on the development of its power industry.

"This naturally covers the topics of the development of fossil-fuel facilities, hydro-electric plants and nuclear power stations."

The provincial Electric Power Prospecting and Design Institute, which completed a feasibility study for the first Daya Bay scheme, is now conducting a similar study for a second plant in Guangdong.

Mr Wang pointed out that individual provinces were held responsible for their local economy.

"All local governments are concerned about their economic well-being, which in turn is linked with energy resources development. It is not only natural but inevitable that the city and provincial authorities are carrying out energy development research programs," he said.

Meanwhile, an official of the Hong Kong partner in the first Daya Bay scheme yesterday said they had not been approached by Chinese authorities for further nuclear investments.

Mr Dominic Tai, public affairs manager of the Hong Kong Nuclear Investment Company (HKNIC), said the utility firm was not involved in Guangdong's feasibility study.

The HKNIC holds a 25 per cent stake in the present Daya Bay scheme.

Personal View May Have Been 'Premature Disclosure'

51004006c Hong Kong SOUTH CHINA MORNING POST in English 10 Apr 89 p 7

[Text] What has now been dismissed by Beijing as merely the personal view of a nuclear expert could well be the premature disclosure of China's intention to build a second nuclear power plant at Daya Bay.

The prospect of having a second plant there was outlined by Mr Jiang Shengjie on 30 March to a Hong Kong-based left-wing daily, NEW EVENING POST.

Mr Jiang's credentials are impressive.

He is a former Vice-Minister of Nuclear Industry and ex-director of the National Nuclear Safety Administration.

Now a technical adviser to the Nuclear Industry Development Corporation, Mr Jiang also heads the Chinese Society of Nuclear Science.

The official said China was considering an initial \$23.4 billion investment in a Daya Bay phase two scheme.

He explained in detail how the proposed project would be cheaper than the first one, a Sino-Hong Kong joint venture which costs \$28.8 billion.

The proposed plant could be equipped with two Russian 1,000-megawatt pressurised water reactors through barter trade, he said.

Mr Jiang also stressed that building a second station at Daya Bay would not pose safety problems as the region could house up to four nuclear plants.

The news triggered an unprecedented show of unity in Hong Kong.

Politicians who supported the first Daya Bay scheme three years ago, closed ranks with anti-nuclear activists in denouncing the proposal.

It was understood that the Beijing leadership was taken by surprise by the strong sentiments in Hong Kong and had ordered an official denial.

The Hong Kong Government, concerned about the prospect of another confidence crisis, had also taken the initiative to ask London to raise the issue with China through its embassy in Beijing.

The Chinese Ministry of Energy Resources then clarified that a second Daya Bay plant was not included on its agenda for energy development up to the year 2000.

Ministry spokesman Wang Wenze dismissed all Mr Jiang's remarks as personal views of an individual expert.

Both the State council's Hong Kong and Macau Affairs Office, which oversees Hong Kong's transition to 1997, a China's representative body in the territory, the Hong Kong branch of the New China News Agency, also reaffirmed the official line.

To allay anxieties, the authorities noted for the first time ever that "public acceptability" would be considered in site selection.

Despite the Chinese assurances, the Guangdong Electric Power Prospecting and Design Institute is now conducting a feasibility study for a second nuclear plant in the province.

Daya Bay was originally included as an option. But given the recent turn of events the site is almost certain to be excluded from the final report.

Energy Official Views Nuclear Power Plans
HK1205034589 Hong Kong HONGKONG STANDARD
(CHINA TODAY SUPPLEMENT)
in English 12 May 89 p 1

[By Stanley Leung]

[Text] China's Ministry of Energy is compiling a list which identifies all future potential sites for nuclear power stations throughout the country.

The ministry's director of its general office, Mr Wang Wenze, told the HONGKONG STANDARD in Beijing that identifying these potential sites would help the ministry work out a long-term plan for energy development in the country.

He says various potential sites could be identified in each province.

The ministry, set up about one year ago, has recently dispelled fears that a second station would be built near the current Daya Bay Nuclear Power Plant.

Mr Wang said in the next 10 years or so, nuclear energy is not expected to make a significant contribution during what he described as the initial stage.

During the initial stage, China will try to gain more experience in various aspects including technology, management and safety of nuclear operations.

The current Daya Bay plant serves as an "experiment" for the nation's future nuclear energy development.

But coal would remain the main source of energy for electricity generation for a long period to come, Mr Wang anticipated.

According to its energy development plan up to 2000, China will devote more resources to develop the hydroelectric power which has better conditions for growth.

Mr Wang said the largest stumbling block other than technological reasons to faster development was a lack of funds in a backward economy.

Mr Wang stressed that the construction of a second plant in the current Daya Bay site was not included in the ministry's future blueprint.

In the long run, he said China should be able to build its own nuclear facilities.

But at the moment these expensive facilities have to be imported from advanced countries.

The ministry spokesman however refused to comment on whether Soviet facilities would be bought for China's third nuclear plant in Liaoning Province.

"The project in Liaoning is still being considered; China has not yet entered any negotiations with the Soviet Union on that project," he said.

It was reported that contracts for the Soviet-made reactors would be signed during the Soviet leader Mikhail Gorbachev's crucial visit to China next week.

Mr Wang said the Chinese Government took a particularly cautious attitude toward construction of nuclear power plants in the country.

After a feasibility study is conducted, any proposals have to be submitted to the ministry and State Planning Commission for examination. The final go-ahead for any nuclear plants should be given by the State Council.

The procedure is much more complicated than the construction of other power plants.

The recent controversy over a possible second nuclear plant at Daya Bay arose after positive comments on such a plan from a Chinese nuclear expert, Mr Jiang Shengjie.

Mr Wang said all the provinces had the right to study development of nuclear power but eventually proposals had to be vetted by the central authorities.

Unlike in developed countries with advanced technology, the production cost of nuclear energy in China is three or four times higher than other sources of energy.

In Western countries, the cost is only 30 to 50 percent higher.

Declining to disclose how many nuclear plants are going to be built in the next 10 years, Mr Wang said it all depends on the success of the current plants and the future economic growth.

French Paper Cited on PRC Missile Sales

NC1805182989 Cairo MENA in Arabic
1608 GMT 18 May 89

[Text] Paris, 18 May (MENA)—The French newspaper LA TRIBUNE [as received] reported today that Saudi Arabia and Syria have signed a 3-way agreement with the PRC to purchase surface-to-surface M9 missiles and Chinese long-range [as received] CSS-2 ballistic missiles, which have a range of 2,700 km. These missiles are described as "self-guiding"—that is, they carry equipment that enables them to adjust their course by themselves.

The French newspaper, which specializes in economic affairs, adds that Saudi Arabia will finance the entire deal. The paper notes that Riyadh had previously supplied itself with Chinese-made CSS-2's, something which angered the United States at the time, according to the paper.

Nuclear Power Seen as Solution to Energy Crisis
51004006b Hong Kong *SOUTH CHINA MORNING POST* in English 10 Apr 89 p 7

[Article by Andy Ho and S.Y. Yai]

[Text] China's energy shortage has long been a bottleneck holding back development of the national economy and there is every sign that it is getting worse.

Energy supply grew from 496 billion kilowatt hours (kwh) in 1987 to 537 billion kwh last year, but consumer demand jumped from 560 billion to 660 billion kwh during the same period.

In 1987 alone, the cost of industrial production lost because of power black-outs was estimated at about \$840 billion.

Premier Li Peng said in January that problems existing in coal mines, railway systems and electric power plants all contributed to the energy shortage China faces, but insufficient railway capacity remained the main reason.

In view of this energy crisis, Beijing sees nuclear power as a feasible solution.

Despite the huge initial outlay needed for a nuclear plant, some 50 per cent more than for a similar-sized coal-fired station, overseas experience shows that nuclear-generated electricity costs a third of the price of coal-generated electricity, and a fifth of that generated from oil.

The nuclear industry has been reorganised in recent years. Before the mid-1980s, more than 80 per cent of the industry's resources and workforce were devoted to China's military nuclear program. Since 1986, the industry has refocused on expanded non-military applications, with a target that 70 per cent of production by 1990 will be for civilian use.

Plans drawn up in the mid-1980s call for China's total nuclear energy capacity to reach 10,000 megawatts—about 2 per cent of total power output—by the end of the century.

The nuclear program was, however, frozen by the Government in 1986 because of the lack of hard currency to finance it.

Ambitious blueprints were apparently scaled down last summer when the Nuclear Industry Corporation general manager, Mr Jiang Xinxiong, said China intended establishing nuclear stations with a capacity of 4,500 to 6,700 megawatts by the end of the century, a target hailed by industry experts as more realistic.

This figure means building reactors with a total capacity of 1,200 to 3,400 megawatts by the turn of the century,

apart from the stations at Daya Bay in Shenzhen and Qinshan in Zhejiang.

The two French-designed 900-megawatt pressurised water reactors in Daya Bay are scheduled for commissioning in 1992. A 300-megawatt reactor is under construction at Qinshan and two more 600-megawatt units are being planned.

A small 5-megawatt experimental reactor serving 1,400 households has been in service in Beijing since late 1987.

According to present plans, the country will have a power generating capacity of 240,000 megawatts by the year 2000 to produce 1,200 billion kwh of electricity, 68 per cent of which will be thermal, 30 per cent hydroelectric, and a meagre 2 to 2-1/2 per cent nuclear powered. This, however, would still leave a shortfall in supply of up to 35 per cent.

Various provinces which are the hardest hit by the energy shortage have announced bold plans to construct nuclear power plants.

Liaoning, which faces an estimated 6,000-megawatt energy shortfall by the year 2000, has spent 7 million yuan (HK\$14.7 million) on feasibility studies for a proposed 600-megawatt station.

Guangdong is spending 10 million renminbi (HK\$21 million) on geological assessments for 2 plants this year. Jiangsu, Fujian and Jiangxi have also begun exploratory work to prepare for central approval.

Former Vice-Minister of Nuclear Industry Jiang Shengjie said last year that the amount of electricity consumed by an average Chinese citizen was only about two-thirds below world average.

He said China would continue to develop nuclear stations in areas where there was a power shortage and it had a policy of developing nuclear plants steadily as a long-term alternative to coal-fired power plants.

State Circular on Nuclear Plant Management
HK1605094789 Beijing *RENMIN RIBAO* in Chinese
12 May 89 p 1

[XINHUA Report: "State Council General Office Issues Circular on Unified Management over Nuclear Plant Construction"]

[Text] Beijing, 11 May (XINHUA)—The General Office of the State Council recently issued a circular demanding that construction of nuclear plants throughout the country be placed under unified management.

The circular stated: Some areas have scrambled to suggest the building of nuclear plants. Due to complicated nuclear technologies, strict safety requirements, a series

of problems involving the mix of energy and rational distribution, and a very great effect on national economic development, nuclear plant construction must be subject to overall state planning. The circular stipulates that nuclear plant construction must be included in state

plans and subject to unified planning and leadership by the Ministry of Energy Resources. The China Nuclear Industry Company is authorized and entrusted to exercise unified control and take direct responsibility for nuclear safety control work.

JAPAN

Foreign Ministry Reaffirms Nonnuclear Principles *OW1905020889 Tokyo KYODO in English 1507 GMT 18 May 89*

[By Tim Johnson]

[Text] Tokyo, May 18 KYODO—The transit of nuclear weapons through Japanese territorial waters is subject to a strict prohibition on the "introduction" of nuclear weapons into the country, a Foreign Ministry spokesman said Thursday.

Spokesman Taizo Watanabe's statement was designed to put to rest speculation that the conveyance of nuclear arms aboard U.S. naval ships and submarines may not necessarily amount to the proscribed "introduction" of the weapons into Japan.

The clarification comes amid a growing controversy surrounding the 1965 loss of an H-bomb from the U.S. aircraft carrier *Ticonderoga* in international waters some 320 miles off densely-populated Okinawa.

The inert 1-megaton bomb is believed to have leaked nuclear materials during its 4,800 meter descent to the ocean bed.

Reports that the *Ticonderoga* was en route to a Japanese naval port at the time of the accident has fueled conjecture that the U.S. has been routinely violating a "prior consultation" agreement in force at the time.

The U.S., which neither confirms nor denies the presence of nuclear weapons aboard its naval vessels, is also alleged to have run afoul of Japan's so-called "three non-nuclear principles," espoused as government policy some two years later in 1968.

While not inscribed in law, the policy prescribes "not possessing nuclear weapons, not producing them and not permitting their introduction into Japan."

The U.S., pressed by Japan for an explanation of the incident, issued a brief statement last Monday that the bomb presented no environmental hazard.

The Pentagon also said that the U.S. has "faithfully honored" its obligations under the 1960 Japan-U.S. Security Treaty, but officials would not comment on allegations to the contrary.

Watanabe refuted remarks attributed to former U.S. ambassador to Japan Edwin Reischauer that the two governments had a secret agreement exempting the mere transit of nuclear weapons through Japan.

"That is a different interpretation from the official interpretation of our principles," the Foreign Ministry's spokesman said.

"It's true the three principles are not a law," said another ministry official. "But they are principles that our government has openly announced before the Diet and we have been abiding by them as a law."

The official said the prohibition on the transit of nuclear weapons as implied in the three principles is equally applicable to the two countries' accord on prior consultations.

Under the bilateral security treaty, any major changes in U.S. armaments in Japan would be the subject of advance notification.

Japanese officials say that accord has always been mutually understood as encompassing nuclear weapons through a separate oral agreement and exchange of notes.

Watanabe said, however, that Japan has never received such a request from the U.S. to transport nuclear weapons through its territory since the security treaty went into force.

The government has been under strong pressure from opposition parties, citizen's groups and Okinawan inhabitants to shed more light on the *Ticonderoga* incident.

Watanabe said that the government has not taken any action on the issue since it received the U.S. explanation of the incident last Monday and convened a meeting of experts from various ministries to study the environmental implications.

"If and when further information is received, we may have another round of consultations," he said.

Officials said that when the expert group reconvenes, they will present the Foreign Ministry with a list of environmental impact-related questions they wish to clear up with the U.S. side.

Questioned on Japan's request that Washington explain whether the *Ticonderoga* went to Japan after the accident or not, Watanabe said, "We have not received a response."

He said that Japan has not been able to determine on its own the validity of media reports that the ship docked in Yokosuka, a major naval base south of Tokyo.

Watanabe would not predict what would happen if it became known that the U.S. did indeed bring nuclear weapons to Japan.

"We just trust that America could abide by this stipulation with regard to prior consultation," he said.

BULGARIA

Nuclear Power Plant Safety Association Welcomed
*AU1805142489 Sofia TRUD in Bulgarian
17 May 89 p 1*

[Aneli Bacheva commentary: "Peaceful Atom"]

[Text] The most serious problems are always worldwide in nature, and they can only be resolved through international cooperation. The nuclear power plant issue is one such problem. Whether humanity rejects or admires them, it has nevertheless realized that today's economic and ecological problems cannot be overcome without their aid. The accidents at Three Mile Island, Chernobyl, and other incidents have focused attention on the need to combine the efforts of world science and technology to improve the safety and reliability of the power plants. Given that we will continue to coexist with the atom, we must naturally disseminate the rich experience that many countries have in the "peaceful interpretation" of the atom. The World Association of Organizations Operating Nuclear Power Plants that has been founded in Moscow will be engaged on these noble tasks in the future; it will also aim to make its contribution to eliminating the global threat to the environment and to guaranteeing common ecological security by the quickest and most effective methods, because these are the demands of the times.

The world association also offers a further, more tempting advantage, namely for man to cooperate in managing the peaceful atom, so as to muffle the explosions in Mururoa, Nevada, or Semipalatinsk.

CZECHOSLOVAKIA

Pavel Reviews Radiation Situation
*AU1805084189 Bratislava PRAVDA in Slovak
12 May 89 p 2*

[CTK report: "Regular News Conferences on Sessions of the CSSR and the SSR Governments"]

[Excerpts] Prague—At a news conference yesterday [11 May], Miroslav Pavel, head of the press section of the CSSR Government Presidium, briefed journalists in detail on the complex of measures designed to strengthen the economic balance and improve the general development of the Czechoslovak economy this year. [passage omitted]

The journalists were also informed about the radiation situation in the CSSR at the beginning of the year. After the accident at the Chernobyl nuclear power plant, the CSSR central monitoring network has been constantly monitoring the basic radiation parameters. The measured values of external radiation are very low and are in line with the natural background, made up of natural radionuclides in the natural environment. The level of the volume of aerosol activity in the course of last January was very low. It is approximately six points lower than the level

permitted by a decree of the CSSR Ministry of Health and Social Affairs. These parameters are comparable with the situation prior to the accident in Chernobyl.

The levels of nuclides of caesium-137 and 134 measured in basic foodstuffs were way under the permitted level. For example, with regard to baby dairy food the level is two points lower than permitted in the EEC states; in meat it also is two points lower; in fruit, vegetables, grain, and potatoes the level is barely detectable; in dried mushrooms it is four times lower than the EEC norms permit. The overall average annual value of internal contamination by foodstuffs in no case exceeds the norms set by the health organs. [passage omitted]

Academy of Sciences Criticizes Nuclear Energy
*AU0905113889 Vienna DIE PRESSE in German
9 May 89 p 15*

[APA report: "CSSR Secret Study Criticizes Nuclear Energy"]

[Text] Vienna—It has now become known for the first time that the CSSR nuclear development program has been officially criticized. In a secret paper passed on to the Austrian Students Union, the Prague Academy of Sciences has taken a detached view of the use of nuclear energy.

Despite "several new problems and emotional resistance by the citizens of some countries, nuclear energy research is continuing," it is stated in the study entitled "Prognosis of the CSSR's Social, Economic, and Scientific Development Through the Year 2000." However, the scientists do not expect that "new, better, and safer reactors will be in practical use" before this date.

The study ordered by the Prague government proposes solar energy as an alternative. If consistent economic guidelines were applied to production and consumption, there would be no international energy crisis in the next 20 to 30 years, it is stated. Therefore, the energy supply would not collapse without nuclear energy.

GERMAN DEMOCRATIC REPUBLIC

Nuclear Agreement Signed With DPRK
*AU0905181789 East Berlin NEUES DEUTSCHLAND
in German 5 May 89 p 5*

[Text] East Berlin (ADN)—On Thursday [4 May] a delegation of the GDR State Office for Nuclear Safety and Radiation Protection concluded a several-day visit to the DPRK, in the course of which the GDR State Office for Nuclear Safety and Radiation Protection and the DPRK Ministry for Nuclear Energy signed an agreement on cooperation in the field of state control of the protection against dangers caused by the peaceful use of nuclear energy. Cooperation is to focus on the legal foundations of the safe use of nuclear energy and the exercise of state control over nuclear plants.

HUNGARY

Villagers Demonstrate Against Waste Site

AU1705143089 Budapest NEPSZABADSAG in Hungarian 8 May 89 p 4

[Article by Tamas Ungar: "Protest Against the Nuclear Burial Site at Ofalu—4,000 Villagers Demonstrate"]

[Excerpts] Despite the cool and rainy weather on 7 May, almost 4,000 villagers demonstrated against the planned radioactive residue burial site near Ofalu, Feked, and Vemend. The participants came to the site from three adjacent villages and listened to speakers from various environmental protection movements, alternative organizations, and from the local German national minority federation. Ferenc Weller, chairman of the joint county council of Mecseknedas, Ofalu, and Obanya, pointed out that the local population had the right to decide on matters that affect them directly. He drew attention to the fact that national minorities were living in this area and, if the planned burial site is established here against their will, this could lead to a forced assimilation, because many people are expected to leave these villages. At the end of the peaceful demonstration, the participants formulated a resolution. [passage omitted]

The organizers held a news conference in the afternoon, at which we heard that the Paks nuclear power station had sent a letter to every citizen in the three villages in question in which the enterprise informed the people that the competent committee of the Hungarian Academy of Sciences did not find the site unsuitable as the projected burial site. [passage omitted]

Used Nuclear Plant Fuel Returned to USSR

LD1305172289 Budapest MTI in English 1633 GMT 13 May 89

[Text] Budapest, May 13 (MTI)—Used nuclear fuel from reactor 1 of the Paks nuclear power plant has been returned to the Soviet Union after five years of storing.

The Soviet Union supplies fresh fuel for the plant's four 440-megawatt reactors and, under an inter-state agreement, takes over the hazardous waste unfit for recycling.

POLAND

Rakowski Defends Zarnowiec Nuclear Plant

LD1805230689 Warsaw Television Service in Polish 1730 GMT 18 May 89

[Text] [Announcer] The premier was in the Gdansk coastal region today.

[Correspondent] He visited the construction site of the Zarnowiec nuclear power station. He saw how the work is progressing and showed an interest in the workforce's attitude toward the public discussion of the development of atomic energy in Poland.

[Begin Rakowski recording] I felt I really had to come to Zarnowiec, for I know that the future of atomic energy is a subject of discussion. I wanted to see for myself what Zarnowiec looks like and, above all, to see what the people who are building Zarnowiec think. I must, of course, make it clear that I am not an expert by any means, but from what I can see, on the basis of a certain amount of experience—my eyes have seen a good many things already in my lifetime, various construction sites—this construction site is excellently managed, very well organized.

Most important, I met people who are involved in their work and who long to put their arguments in favor of constructing a nuclear power station to those people who, for various reasons, often motivated of course by very noble feelings, protest the construction of this atomic power station. And I think it will be necessary to enable the power industry specialists here as well as the heads of various construction organizations taking part in building Zarnowiec to exchange views with those people.

For various rumors are circulating, for instance, that what is being built is not durable enough; or that the construction does not guarantee safety. People often form their opinions about Zarnowiec, of course, without seeing Zarnowiec at all. They base them, let us say, on their experience of housing construction, where a huge slab cracks or something goes wrong with a house built carelessly or in violation of building regulations. I think that such a confrontation should be brought about.

Again, I am no expert, but I know one thing: Poland needs more energy, and if we do not increase the amount of energy, we will face a great crisis, with great economic complications. Of course, someone who opposes nuclear power can say that normal power stations could be built; I say that normal power stations pollute the environment, coal extraction is increasingly costly and this raw material should be conserved.

A supporter of atomic energy will say that France has 60 percent atomic energy; that power stations are sited near cities; that the GDR is building nuclear power stations; and that Poland is an island. I saw a map today, and Poland is an island in Europe, lacking any kind of nuclear power station. I realize that public opinion is divided on the subject of the future of Zarnowiec, but I would like, first and foremost, to honor those people who are building Zarnowiec; who are keeping an incredibly watchful eye on technical standards, who are outstanding experts and, above all, have a high developed sense of responsibility for what they are doing. One would like to see work organization like this on all industrial construction sites in Poland, aimed at achieving the highest quality of what is being built. Here, of course, the standards define the quality, but as we know, human beings are what matter in the end and I have confidence in the people I have met here. [end recording]

Rumors of Increased Radioactivity Denied

*LD1705191389 Warsaw Television Service in Polish
1800 GMT 17 May 89*

[Text] And there is still some news from Poland. In connection with a rumor spread in Warsaw today about a supposed increase in the level of radioactivity, Janusz Sietkowski, the duty officer of the control center of the

accident service of the central laboratory for radiological protection, stated that measurements taken within a complete 24-hour cycle did not show any divergence from the normal level of radiation, either in Warsaw and its suburbs, or in other regions of Poland. Neither was information obtained concerning an increase in radiation from foreign [word indistinct] services nor from the International Atomic Energy Agency in Vienna.

BRAZIL**Cold Fusion Research by Institutes Described****Scientists Achieve Cold Fusion**

51002054a Rio de Janeiro *O GLOBO* in Portuguese
19 Apr 89 p 15

[Text] Sao Paulo—The process of nuclear fusion at room temperature is no longer a challenge for Brazilians. The Director of the Physics Institute at the University of Sao Paulo, Ivan Nascimento, announced yesterday that the experiment taking place since last Thursday in conjunction with the Institute for Energy and Nuclear Research (INPE) was successful in replicating the work of American Stanley Pons and Briton Martin Fleischmann. Only a few discrepancies were apparent with respect to the release of neutrons and, therefore, the research will be continued next week.

"We repeated the experiment based upon the description of what was done in the United States, but we used a palladium electrode instead of titanium. We detected neutrons, which indicates nuclear fusion," observed Ivan Nascimento.

The team, composed of Ivan Nascimento, Alceu Pinho, and Yuda Goldman from the USP Physics Institute, and Rajendra Saxena and Paulo Rogerio Coelho from IPEN, made eight attempts from Thursday on to detect neutrons. On Friday they obtained positive indications of the presence of neutrons and then they repeated the measures every 8 hours. Yesterday they verified a positive balance.

The Brazilian physicists did not perform the measurements directly to evaluate the energy released in the deuterium fusion process. This procedure is scheduled for next week, utilizing calorimeters. They used four electrochemical cells of quartz and Pyrex with electrodes of platinum (positive) and palladium (negative). The electrodes were submerged in heavy water with a pH level of acid or base, with the objective of accelerating the electrochemical process, and in the end they achieved a rate of emission of 10,000 neutrons per hour. The quantity, according to Ivan Nascimento, is very low and does not explain the release of energy, which could have occurred through an electrochemical process, and is to be tested in the next phase.

The release of neutrons in the palladium electrode was sufficiently large, but even so Ivan Nascimento calculated that it was 1 million times less than necessary for the emission of energy; as in Utah, they verified 10,000 neutrons, when they needed 1 million. And physicist Spero Morato, head of the Department of Special Processes at IPEN, stated that the two foreign scientists deserve the Nobel Prize for the discovery, but he emphasized that that does not mean that they can benefit from the energy, because more research is required.

The cold fusion process is cheaper, because the raw material is deuterium, found in every type of water, including sea water. For that reason Alceu Pinho discarded the possibility of entering into large-scale production of heavy water, at least during the experimental phase: "IPEN has a stock of 1 ton of heavy water. At the research level, production is not necessary. In this work, we used a half liter in the four cells and, if it were necessary, we could acquire it in the outside market, because there are no controls such as those required in the case of uranium."

Alceu Pinho also noted that there is no doubt as to whether fusion occurred, as neutrons can only be measured when the nuclear process has occurred.

Navy Contemplates Reactor Construction

51002054a Rio de Janeiro *O GLOBO* in Portuguese
25 Apr 89 p 15

[Text] Sao Paulo—The Brazilian Navy is waiting only for scientific confirmation of the efficiency of cold fusion to initiate, in conjunction with the National Nuclear Energy Commission (CNEN), the construction of a special reactor capable of generating energy utilizing that technology. This information is from Vice Admiral Othon Pinheiro da Silva, president of the Coordinating Body of Special Projects for the Navy (COPESP), and responsible for nuclear reactors for submarine propulsion.

"What is important about this phase is to understand the mechanism that generates energy. Our true challenge now is to master the reaction that occurs during the fusion of the deuterium atoms. Once this process is understood and characterized, it is easy to apply it in a reactor."

The vice admiral said that the first step of the study would be completed after the process of generating energy from cold fusion is understood, after performing an energy measurement to confirm that the energy produced by the fusion is greater than that expended in the process, and also after having verified the elapsed time and temperature and pressure conditions involved in the generation of energy.

"We will then initiate the second stage, which consists in altering some of these factors to attempt to increase energy production. This phase will also examine the engineering of the process, with the construction of an energy generation system. We will construct at IPEN a system similar to those that are in use in the nuclear fission reactors, such as that at Angra. This means simulating in the laboratory two circuits that use water. The first would be used for the refrigeration of the reactor nucleus. The second would be for producing steam to activate the turbine and produce energy."

The vice admiral said that the fusion reactor would be "an elegant cousin" of the PWR reactors used at Angra and he calculates that 90 percent of the components in the nuclear fission reactors could be used in the fusion reactor. What would change, he explained, is the nucleus. Instead of being fed by bars of enriched uranium, the nucleus of the fusion reactor would have a collection of electrodes and bars of palladium, the metal used in the cold fusion processes (it is in the interior of the palladium that the fusion occurs). And instead of using common water to refrigerate the nucleus and produce steam, heavy water would be used.

Scientist Calls for Nuclear Research Policy
51002054a Rio de Janeiro O GLOBO in Portuguese
22 Apr 89 p 14

[Text] Sao Jose dos Campos, Sao Paulo—The Institute for Space Research (INPE) will propose to the National Nuclear Energy Commission a meeting, in the next few days, of all the scientists and representatives of research centers who are attempting to replicate the cold nuclear fusion experiments and who, for some time, have studied hot nuclear fusion. The idea is to promote a broad discussion to generate a new proposal for a national program that will place priority on cold nuclear fusion.

According to researcher Ricardo Galvao, one of the coordinators of the cold fusion experiment at INPE, the urgent formulation of a policy for that sector and a concentrated coordinative effort of all Brazilian research in the area is the only way to prevent the advances achieved from turning into a disaster, as occurred with the studies connected with ceramic materials and superconductivity.

"Three years ago Brazil was at the level of the largest superconductor research centers of the world, thanks to the work performed at the State University of Campinas and the University of Sao Carlos," said Ricardo Galvao. "Now, due to the lack of a sectoral policy and government investment, there has been a great lag."

INPE will solicit bids for the purchase of material to continue with the cold fusion research and will develop its research in conjunction with the Aerospace Technical Center, of the Aerospace Office.

PUC Attempts to Replicate the Italian Model

After pointing to the quantity of neutrons emitted in an experiment performed at COPPE [Coordination Board of Postgraduate Programs in Engineering] as evidence of nuclear fusion at room temperature, scientists from the PUC [Pontifical Catholic University], the Physics Institute at the UFRJ [expansion unknown], COPPE, and the Nuclear Energy Institute this weekend attempted at PUC to replicate the Italian experiment, which substituted liquid deuterium for gas at extremely low temperatures. In the first successful experiment in Rio, the quantity of

neutrons recorded was three times higher than that found naturally in the environment. The results of the PUC attempt will be released at the beginning of next week.

Reportage on Cold Fusion Technique Research

Attempts to Replicate Experiment
51002053 Rio de Janeiro O GLOBO in Portuguese
10 Apr 89 p 32

[Article by Helio Hara and Jose Eustaquio de Freitas]

[Text] Attempts at replicating in Brazil the cold nuclear fusion experiment that was first announced by the University of Utah have mobilized still limited groups of Brazilian researchers dedicated to the study of that means of generating energy. Preparations have already begun in Rio, Sao Paulo, Minas Gerais, Rio Grande do Sul, and Paraiba, where scientists hope to prove the revolutionary methodology, whose potential as a source of energy is theoretically infinite.

"If the experiments are successful, mankind will receive nature's greatest gift," says Gerson Otto Ludwig, director of the Plasma Laboratory at Sao Jose dos Campos.

Since the beginning of last year, the researcher has directed a plasma laboratory based at the Institute for Spacial Research (INPE). The main goal of the scientists at the laboratory where the cold fusion experiment was begun Friday is to develop reactors capable of providing energy for satellites and space vehicles, in place of the solar panels and nuclear fission reactors currently being used.

"The theory has been known for 30 years, but we need to understand what occurs inside the process. It is possible that there are reactions and conditions that have not been anticipated or could not be observed," says Ludwig.

The INPE scientists admit that if the experiment is successful, the majority of the physicists interested in nuclear fusion would then dedicate their studies to the new process. With that, one could expect a decrease in the pace of several studies in the development of hot fusion.

Within INPE itself there exist plans and prototypes for centrifuges that would be utilized in the construction of a laboratory for hot fusion experiments.

To perform the research, scientists at the organization have created a laboratory by allocating 10 square meters of a room which today is used for storing materials, as well as almost the entire corridor giving access to the room. For 4 days, only two members of the research team and the experiment's coordinators will have access to the area, in order to avoid changes in the experiment's

external conditions and to prevent the escape into the environment—through human bodies—of radiation capable of interfering with the measurements.

The scientists believe that fusion of pairs of deuterium atoms subjected to electrolysis could occur before the time anticipated for the end of the experiment, about 100 hours. Fusion normally occurs in shorter periods of time, but the researchers want to maintain the experiment for more time to compensate for other research conditions. With available equipment it is not possible to obtain temperatures much above 50 degrees. In the experiments performed in the USA, the temperature rose to almost 1,200 degrees.

To be efficient, a nuclear fusion reactor requires high temperatures, capable of heating large volumes of water, producing sufficient steam to generate a significant quantity of electric energy.

Although there are as yet no provisions for initiating experiments in Rio, UFRJ, PUC, and the Nuclear Energy [as published] Institute (IEN) have already planned specific equipment to perform the experiment. To prove the possibility of cold fusion, detectors of neutrons and gamma radiation more effective than those utilized in the United States and instruments to measure the energy produced (calorimeters) will be utilized. The use of a mass spectrometer to detect helium-3 will depend upon the results of the apparatus' sensitivity analysis, which was begun last Friday. IEN has already provided 250 milliliters of heavy water and the palladium for the electrodes is being purchased.

Over the next week, the University of Sao Paulo and IPEN will initiate a joint cold nuclear fusion experiment. The scientists say that the research is fundamental for more comprehensive future research and for industrialization of the process, which they hope will occur within 5 years.

All the materials, including the heavy water, are already available to the scientists, making additional investment unnecessary.

In Belo Horizonte, scientists at the Nuclear Technology Development Center (CDTN) directed by physicist Silvestre Paiano Sobrinho have also attempted to replicate the nuclear fusion energy experiment¹.

INPE Leads Research in Brazil
51002053 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Apr 89 p 10

[Text] Brazil could achieve cold nuclear fusion tomorrow, if the experiment taking place at the Institute of Spacial Research (INPE) is successful. The plasma physics laboratory at INPE, in Sao Jose dos Campos, began the electrolysis process Friday at 2100 hours. Since that time a team of 20 nuclear physicists has taken 6-hour shifts of uninterrupted work, attempting to replicate the

achievement of Stanley Pons of the University of Utah in the United States, and Martin Fleischman of the University of Southampton, England, which was announced 20 days ago.

"We have some good indications, but we expect results only after 100 hours," says physicist Ricardo Galvao cautiously, who fixed for tomorrow the latest hour for a definitive announcement of the results of the attempt—whether positive or negative. "That is sufficient time for fusion to begin to occur," predicts the scientist, enthusiastic about the good progress of the experiment thus far.

There is at least one good sign that nuclear fusion has already occurred: Measuring devices have detected the production of neutrons and gamma rays in the area. Ricardo Galvao employs an abundance of precautionary measures before announcing the success of the research. One of them is to measure precisely the radiation in the atmosphere, since the region's soil is rich in torium and emits gamma rays naturally. "In order to be certain of the total amount of energy released, it is necessary to account for the atmospheric radiation, the background noise in the experiment," explains Galvao.

A similar attempt is being made even more discreetly by the group formed a week ago by researchers from the Institute for Energy and Nuclear Research (IPEN) and the Physics Institute at the University of Sao Paulo. USP physicist Ivan da Cunha Nascimento will not venture to make predictions and will provide information only when the experiment has been completed.

The USP and IPEN teams have also begun the electrolysis process after installing a calorimeter containing heavy water (in which deuterium is used in place of hydrogen) and strands of palladium and silver. The researchers want to repeat the fusion experiment several times before announcing an possible success.

The Brazilians' attempt, as well as those of dozens of other laboratories across the entire world, is being performed even before the official release of the results of the authors' research, but the rush is justified: If the results are confirmed, it would be one of the greatest scientific discoveries of the century and could revolutionize energy production.

Pons and Fleischman revealed cold nuclear fusion in an interview with the FINANCIAL TIMES and later at a seminar at the European Nuclear Research Center, to an audience of scientists, among them several Nobel laureates.

The experiment has been repeated in laboratories in the United States, the Soviet Union, Italy, Hungary, and Poland, but some research centers were not successful. The Massachusetts Institute of Technology, the famous MIT, stated that it was not even able to replicate the

experiment. In Italy the ENEA, an atomic energy organization, obtained cold fusion in its Frascati laboratory utilizing titanium in place of palladium and deuterium gas instead of the liquid.

Cold Fusion Explained
51002053 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 16 Apr 89 p 2

[Text] Ever since the oil crisis of 1973, we have all been extremely sensitive to the problem of energy and its importance for modern life. In effect, all the comforts we have at our disposal depend upon machines that, in turn, need energy to move. It has been calculated that the average American—or wealthy Brazilian—consumes some 50 times more energy than a man living in the jungle without the aid of electric lights, automobiles or any other modern equipment.

It should therefore not be surprising that so much attention be given to new sources of energy, since those that are currently used are either being exhausted or create serious environmental problems as a consequence of their own utilization. After World War II there was great hope that nuclear energy—which has its origins in the properties of uranium nuclei—would be an inexhaustible and inexpensive source of energy. Scientists learned to explode those nuclei and use the resulting energy to generate electric energy in nuclear reactors. The same process, when uncontrolled, causes nuclear explosions like those of Hiroshima and Nagasaki. The explosion of the uranium nuclei reminds one of what can happen when an air balloon is filled to bursting. For that reason it is known as fission.

But recently it has been shown that nuclear plants pose serious problems as a result of their high cost and the radioactivity they produce. Hence the need for a pure and inexhaustible source of energy, which scientists are searching for as in the Middle Ages they searched for the fountain of eternal youth.

One of those sources exists and is well known: the sun, the center of the solar system and source of the light and heat that permits life on earth. In the sun the temperature is millions of degrees, causing the nuclei of hydrogen atoms to collide frequently. In these collisions, they come so close to each other that they end by fusing together, forming helium nuclei; in this process energy is produced. These are the nuclear reactions known as fusion and there are several of them, involving hydrogen, deuterium and tritium. Under normal temperature conditions, the probability of these fusions occurring is insignificantly low.

What scientists are hoping to do is create in the laboratory conditions similar to those in the sun's interior, that is, extremely high temperatures and pressures that will increase the probability of collisions. This is done in

"tokamaks" and other similar machines costing hundreds of millions of dollars. Until now, the resulting successes have not been especially encouraging, but progress is hoped for in the future.

It is for that reason that the news that two scientists, an American and an Englishman—Pons and Fleischman—have succeeded in achieving "cold" fusion, that is, in normal temperatures, without complicated equipment, using little more than a battery similar to the one we use in our cars, has attracted so much attention.

The idea they used is very simple: instead of bringing together hydrogen nuclei, increasing the temperature and making them collide with each other at great frequencies, the scientists caused the absorption of deuterium (a special form of hydrogen) in palladium electrodes—in automobile batteries the electrodes are lead. Captured in the crystalline structure of the palladium, the deuterium nuclei came together as if they had been pressed against each other. The result—in theory—would be the same as would have occurred under high temperatures: the fusion of deuterium nuclei, with the production of energy.

Pons and Fleischman reported that in their work—so far not yet published in serious scientific journals, but now being circulated almost clandestinely—fusion occurred and that energy in the form of neutrons and gamma rays had been detected. The results are questioned by many and are being verified by several groups, including the University of Sao Paulo.

The reason the results are being questioned is the following: Few neutrons and gamma rays were detected and it is improbable that this number will be able to be significantly increased. When all is said and done, ever since radioactivity was discovered, at the end of the previous century, scientists have tried to influence—with little success—the behavior of the nuclei of the atoms, increasing the temperature and the pressure. The nuclear forces are much greater than these forces, which cause only small disturbances in them.

It is improbable, therefore, that we will be able to obtain much energy from cold fusion, even if it is theoretically possible, and the topic appears to be condemned to become a scientific curiosity and not a means of resolving the energy problems of the modern world.

Soviet Minister Discusses Space Technology Cooperation

PY1705152289 Rio de Janeiro O GLOBO in Portuguese 16 May 89 p 7

[Text] Brasilia—Marshal Aleksandr Nikolayevich Yefimov, commander in chief of the Soviet Air Force and deputy minister of defense, on 15 May said that it is not yet possible to talk about the signing of a Soviet-Brazilian military accord, but he stressed that a possible

treaty on the space field should be subject to the peaceful use of the rocket launching technology, and that the initiative should be taken by Brazil.

Aeronautics Minister Octavio Moreira Lima, who yesterday awarded Yefimov the decoration of the Order of the Aeronautical Merit, reiterated Brazil's interest in the cooperation in the space field. Yefimov is the first Soviet General [rank as published] to officially visit Brazil.

Yefimov said that his visit does not have any immediate objectives, and that it aims at establishing friendly relations between the Armed Forces of the two countries. Quoting a Russian saying, Yefimov justified his visit by noting that "seeing something for oneself is better than listening to 100 reports about it."

Yefimov declined to talk about political issues because, he said, they involve the sovereignty of both countries. He said, however, that his visit was made possible by the changes that Mikhail Gorbachev is introducing in the USSR.

Minister Moreira Lima, who reiterated Brazil's interest in an accord, stressed that the Soviets have "valuable contributions to make." Brazil has met with restrictions in the transfer of space technology because Western countries fear that the satellite launching vehicle (VLS), which is being developed by the Aeronautics Ministry, can be transformed into an intercontinental ballistic missile capable of carrying nuclear warheads.

Moreira Lima, however, stressed that the Brazilian space program has no military objectives and that Brazil is not planning to develop a hydrogen bomb.

Technical Problems Delay Rocket Launching
PY1605031289 Brasilia Domestic Service in Portuguese
2200 GMT 15 May 89

[Text] The Launch of the prototype of the Satellite Launching Vehicle from Barrera deo Inferno Launching Center, in Rio Grande do Norte, has been postponed until 1100 on 17 May due to technical problems. The launching of the reduced model of the Satellite Launching Vehicle had been scheduled for 16 May, before it was postponed. Technicians of the Barrera do Inferno Launching Center have not revealed what problems caused the delay.

INPE To Enter Into PRC Satellite Accord
51002054b Sao Paulo FOLHA DE SAO PAULO in
Portuguese 20 Apr 89 p 6

[Article by Roberto Lopes]

[Text] The Institute for Space Research (INPE), under the Special Secretariat for Science and Technology, will sign an accord with the Sao Paulo firm Avibras, which is associated with the government of China in a company

planning to implement space programs in Third World countries. Avibras wants to absorb part of the technology developed by INPE in the construction of artificial satellites.

This topic was the subject of a discussion the first week in April between Institute General Director Marcio Barbosa and Avibras Director of Government Relations Pedro Vial, who will be in charge of the Brazilian subsidiary of the new enterprise, christened Inscom (International Satellite Communication). When called upon yesterday by FOLHA at the enterprise's headquarters in Sao Jose dos Campos (85 km from Sao Paulo), Vial was not found. The only information was that he was in Brasilia, and could not be located.

Vial went to Brasilia to accompany a mission from the China Great Wall Industry, the industrial arm of that country's Ministry of Astronautics, which yesterday morning in the Ministry of Communications presented its qualification documents for the competition to launch two Brasilsat-2 communication satellites into space. Great Wall is Avibras' partner in the recently-created Inscom, but since the international company is not yet fully functioning, Vial traveled with the Chinese in order to assist them through the bureaucracy.

No Exclusivity

Avibras' intention is not to become qualified to produce artificial satellites, but rather to acquire expertise in the production of some satellite components. The news that INPE is willing to collaborate with Avibras is important because it shows that the Institute is open to collaboration with any segment of Brazilian industry interested in this field, and does not have an exclusive contract with any industrial group.

The press release on the agreements between the Orbita company (a missile manufacturer), Embraer (an airplane manufacturer) and INPE for the production of a military observation satellite for Iraq gave the impression that INPE was definitely involved in this project, but it was Barbosa himself who insisted on debunking that impression. About a month ago, in an interview with FOLHA, Barbosa stated that he wanted to make of INPE an agency capable of passing its technology in the space sector on to the private sector to increase its expertise. According to an assistant of the INPE director, Barbosa also told that to Vial.

In other areas, such as that of reception and transmission of satellite communications, Avibras needs no help from any government entity. By the end of the year Avibras will deliver to the military three ANSAT-10 10-meter parabolic antennas that the EMFA (Chief of Staff of the Armed Forces) chose for its project known as Siscomis (Military Communications System via Satellite).

Navy To Receive New Submarine in June
51002054c Rio de Janeiro *O GLOBO* in Portuguese
22 Apr 89 p 6

[Text] Sao Paulo—The Tupi, the first of a series of four IKL-209-1000 submarines purchased by the Navy in a technology transfer contract with Germany and the only one constructed in that country, will arrive in Brazil in June. Of the other three, which will form part of the contract with the Howaldtswerkedeutsche Werft (HDW) shipyards, only one is currently under construction, at the shipyard of the Rio de Janeiro Naval Arsenal (AMRJ).

The hull of the second is being built at Nuclebras Heavy Equipment (Nuclep) in Itaguaí (RJ), and the third will only be begun next year, because the important pieces from Germany have not yet arrived in Brazil.

According to Navy Engineering Director Admiral Elcio de Sa Freitas, in addition to modernizing the fleet, the contract for the acquisition of the IKL, with electrical-diesel propulsion, will provide the Brazilian navy with know-how for the construction of submarines, an indispensable prerequisite for the Brazilian Navy to acquire ships with nuclear propulsion.

Adm Elcio stated that the Tupis are submitted to almost a year's testing before they are ready.

"The submarine should depart Germany in May. That is sufficient time for training the crew. It should arrive in Brazil in June, taking about a month to make the crossing. That will be the main test for the crew that will bring it to Rio," explained the admiral.

Enriched Uranium To Be Purchased From Urenco
51002054d Sao Paulo *FOLHA DE SAO PAULO* in Portuguese 24 Apr 89 p A-7

[Article by Tania Malheiros]

[Text] The Brazilian Government signed a contract with Urenco (a consortium of firms from Holland, England, and Germany) a week ago for the purchase of enriched uranium for the Angra 1 (in operation) and Angra 2 (expected to be in operation in 1991) nuclear plants, in the city of Angra dos Reis (154 km from Rio de Janeiro). The information obtained by FOLHA was confirmed by Industrias Nucleares do Brasil (INB) President John Albuquerque Forman. He said that the business was "excellent" because Brazil will only pay for the quantity of uranium necessary for each plant. The previous contract fixed quantities to be delivered over a year.

According to John Forman, what Brazil will pay for each nuclear unit of uranium is the price charged in the international marketplace at the time of delivery. Forman stated that the first contract signed with Urenco, in 1978-79, was for the purchase of enriched uranium to recharge, for the second time, the fuel at the Angra 1 plant, inaugurated in 1981 and put into operation in 1985.

American Veto

The first charging was purchased from South Africa after the United States vetoed the sale of the product for the plant, planned and manufactured by the Westinghouse Electric Corporation, an American firm.

According to John Forman, a recharge of Angra 1 requires, on average, 66 tons of UTS (Unit of Work of Separation), that is, uranium enriched by 1.2 percent, 2.8 percent, or 3.2 percent.

The cost of the UTS currently varies from \$90 to \$250 in the international market, he said. Angra 1's production capacity is 656 megawatts, which is equivalent to 20 percent of the electrical energy consumed by the city of Rio. Angra 2 is already projected to produce 1,300 megawatts when it begins operation, according to Furnas Centrais Eletricas, administrator of the nuclear plants.

The second plant will require, on average, double the quantity of UTS utilized by Angra 1.

Recharge

For each year of operation, the nuclear plants need a new recharge. Angra 1 must stop operations next August or September to receive a second recharge of fuel, stocked in the INB facilities in the city of Resende (160 km from Rio de Janeiro). According to John Forman, the contract signed with Urenco is "much more flexible," because it depends upon the "rate of operation of the plant." In order not to have to exchange the fuel before that time frame, Angra 1 would have to operate at 50 percent of its reactor's capacity (the maximum is 100 percent).

But due to problems in one of the transmission lines at the Itaipu hydroelectric plant in Parana, the plant has been operating at 85 percent capacity for 2 weeks.

Enriched Uranium

According to National Nuclear Energy Commission (CNEN) President Rex Nazareth, the construction of a facility to manufacture enriched uranium on an industrial scale would be justified at the end of the next decade, when in addition to Angra 1 and Angra 2, Angra 3 will also be in operation.

INTERNATIONAL AFFAIRS

Saudi Arabia, Syria To Buy Chinese Missiles

NC1805182989 Cairo *MENA* in Arabic
1608 GMT 18 May 89

[Text] Paris, 18 May (MENA)—The French newspaper *LA TRIBUNE* [as received] reported today that Saudi Arabia and Syria have signed a 3-way agreement with the PRC to purchase surface-to-surface M9 missiles and Chinese long-range [as received] CSS-2 ballistic missiles, which have a range of 2,700 km. These missiles are described as "self-guiding," that is, they carry equipment that enables them to adjust their course by themselves.

The French newspaper, which specializes in economic affairs, adds that Saudi Arabia will finance the entire deal. The paper notes that Riyadh had previously supplied itself with Chinese-made CSS-2's, something which angered the United States at the time, according to the paper.

INDIA

Long-Range 'Agni' Missile 'Successfully' Launched

Radio Report of Launch

BK2205033889 Delhi Domestic Service in English
0335 GMT 22 May 89

[Text] The technology-proven maiden long-range missile "Agni" was launched successfully from Chandipur in Balasore District of Orissa by scientists and engineers of the Defense Research and Development Organization at 0717 this morning [0247 GMT]. The defense minister, Mr Pant, and others were present on the occasion.

More Details Reported

BK220506189 Delhi Domestic Service in English
0630 GMT 22 May 89

[Text] The country's first intermediate range surface-to-surface missile Agni was successfully launched from the interim test range at Chandipur on the seacoast of Orissa at 17 minutes past 7 this morning [0247 GMT]. Among those who witnessed the launching were the defense minister, Mr K.C. Pant; the minister of state for defense, Mr Chintamani Panigrahi; the scientific adviser to the defense minister, Dr V.S. Arunachalam; and a large number of scientists and officers of the Defense Research and Development Organization.

Agni is a two-stage missile. The entire design, development, fabrication, and testing of subsystems and components is indigenous. The lead laboratory in the program was the Defense Research and Development Laboratory at Hyderabad. The maiden test launch is in the basic nature of proven advanced missile technology developed under the integrated guided missile development program.

Our correspondent says that the successful maiden flight of Agni renews the country's confidence in the capabilities of our scientific and technical community and in the maturity of indigenous technology. The technology-proven test flight of Agni today has met all range safety requirements, setting at rest the fears expressed in some quarters about safety precautions associated with such operations. The central and state government had made special arrangements by temporarily moving some sections of the local population for a few hours as part of range safety requirements.

The president, Mr R. Venkataraman, has congratulated the scientists, engineers, and all those associated with the successful launching of the missile Agni. In a message from Simla, the president said that the launch is a tribute to their dedication, hard work, and talent. He said it is a milestone in the country's scientific endeavor through self-reliance.

Gandhi Hails Missile Test

BK2205103889 Delhi Domestic Service in English
0830 GMT 22 May 89

[Excerpts] The country's first long-range surface-to-surface missile, Agni, was successfully launched from the interim test range at Chandipur on the seacoast of Orissa at 17 minutes past 7 this morning [0247 GMT]. [passage omitted]

The prime minister, Mr Rajiv Gandhi, said that this is a major achievement in our continuing effort to safeguard the country's independence and security by self-reliant means.

The prime minister described the launching of Agni as a national endeavor in the pursuit of self-reliance. He said that it is not a nuclear weapon system. What Agni does is to afford us the option of developing the ability to deliver non-nuclear weapons with high precision at long ranges. It provides us with a viable non-nuclear option of the greatest relevance to the contemporary strategic doctrine.

The prime minister said India has no aggressive designs on anyone. We are passionately committed to peaceful coexistence and nuclear disarmament. The action plan presented by India for a nuclear free and nonviolent world order derived its inspiration from India's abiding commitment to the ideals and vision of Mahatma Gandhi, Jawahar Lal Nehru, and Indira Gandhi.

Gandhi Comments on Agni Missile Test Program

BK1605034489 Delhi Domestic Service in English
0240 GMT 16 May 89

[Text] The prime minister has called for greater participation of women in every sector of the economy. Mr Rajiv Gandhi said women are to be taken along with men in the effort to strengthen the country. Addressing the concluding session of the national convention of

Mahila [women] Congress-I in Bhubaneswar, Mr Gandhi said that 30-percent reservation for women in democratic bodies will bring a radical change in our body politic.

Speaking to newsmen after addressing the concluding session, Mr Rajiv Gandhi said the Agni missile testing is a part of our research program, and our own defense projects have nothing to do with any other country. He said Baliapal in Orissa's Balasore District has been chosen for setting up a national test range, as it is the only suitable point available in the country.

Kalpakkam Fast Breeder Test Reactor Restarted
BK1405032089 Delhi Domestic Service in English
0240 GMT 14 May 89

[Text] The Kalpakkam fast breeder test reactor near Madras has been restarted after remaining shut down for nearly 2 years. The reactor attained criticality on Thursday [11 May]. Commissioned in 1985, the 40-megawatt reactor is basically experimental. It was shut down in May 1987 after a mishap that occurred while handling fuel.

ISRAEL

Negotiations for German Technology Alleged
JN1705141089 Cairo AL-WAFD in Arabic
15 May 89 p 1

[By 'Adil Sabri]

[Text] Israel is currently holding secret talks with a group of FRG experts and firms specialized in designing and installing nuclear reactors. The purpose of the talks is to set up an Israeli nuclear reactor in the Shatfa [placename as published] area, about 30 km from the Egyptian border, and help Israel use small reactors to generate nuclear power. During its negotiations with the German side, Israel stressed that Israeli experts should participate in designing and developing nuclear reactors to produce electricity in the early nineties. Israel has also started to finalize its plans to set up the nuclear reactor, which will be manufactured locally with the help of German experts and will use saturated uranium.

Israel had earlier refused to sign the international agreement on the use of nuclear power for peaceful purposes. It also rejected any supervision over its nuclear installations by the International Atomic Energy Agency.

Israel Will Not Be First To Use Nuclear Arms
AU1805143089 Rome ANSA in English
1230 GMT 18 May 89

[Excerpt] (ANSA)—Rome May 18—"Israel will not be the first to introduce nuclear arms in the Arab-Israeli conflict. A commitment to this effect has already been

made to the United States," Israeli Defence Minister Yitzhaq Rabin affirmed in an interview appearing in today's edition of the Rome daily IL MESSAGGERO. [passage omitted]

PAKISTAN

Nuclear Power Generation Program Outlined
BK2905123589 Karachi DAWN in English
22 May 89 p 3

[Text] Lahore, May 21—A 20-year programme for nuclear power generation through reactors produced locally on the principle of "co-manufacturing" has been drawn up by the Pakistan Atomic Energy Commission (PAEC). The idea of acquiring nuclear technology through the "co-manufacturing" principle has the approval of the Prime Minister Benazir Bhutto. With the 20-year plan ready, the stage is now set for a sure and a steady take off, highly placed PAEC sources told DAWN here on Sunday.

Under the "co-manufacturing" principle, private industries of Pakistan would collaborate with some foreign firms in the development of nuclear reactors. The Government of the countries to which these firms belong would have nothing to do with the project. Thus, technically being a private-sector venture, Pakistan would not be required to sign the Non-Proliferation Treaty (NPT), which it is reluctant to do unless India does the same, the sources said.

The PAEC estimates that Pakistan would be able to have a capacity to generate about 6,000 megawatts of nuclear power by the turn of the century. The first reactor to be fabricated locally would take some seven years to complete and would have a 300-MW capacity. Thereafter, it would make over half a dozen reactors of the same capacity before switching over to 600 MW reactors. The simultaneous fabrication of 300 MW and 600 MW reactors would continue for some time, after which, fabrication of low capacity reactors would be given up.

A high-capacity reactor cannot be undertaken at the very outset because in the present situation, local industry would not be able to make much of a contribution, thereby making reliance on imported components necessary.

The idea of gradually acquiring capability to manufacture high-capacity reactors has been borrowed from India, which is very much in the field since the late [Prime Minister] Pandit Nehru, who had given New Delhi a 30-year programme of promoting nuclear technology. India standardised 235-MW reactors and has been manufacturing one reactor biennially since the last decade and is gradually proceeding towards the 500 MW capacity.

The PAEC has already assessed the engineering capability of some 400 major industrial units, a number of which have already been trained in maintaining high standards of quality. Heads of some 20 industrial units were taken to various European countries where they were shown 50 industries engaged in the manufacture of nuclear reactors.

Pakistan has already signed memoranda of understanding with 17 industries for collaboration in this field.

Answering a question about the existing potential of the local industries to undertake the new assignment, the sources said: "We are not starting from scratch. We are already mobilised."

Questioned as to why Pakistan could not make any headway in this field in the past, the sources said it was because of lack of commitment. The late Zulfiqar Ali Bhutto had planned about two dozen nuclear reactors for the country by the end of current century, but no serious work was done in this regard by the governments that followed, the sources maintained.

To another question the sources said given serious attention, Pakistan would have acquired a nuclear reactor without signing the NPT. [sentence as published] A number of countries are prepared to provide Pakistan a nuclear reactor provided it paid for the same in cash. It was mainly because of lack of foreign exchange that Pakistan could not obtain it.

A 600-MW reactor costs about 1.5 billion dollars.

A number of countries have facilities to manufacture reactors and sell the same to other countries but they are not finding buyers. Consequently, their plants are lying idle and they are desperately trying to find purchasers who can pay in cash.

With Pakistan in a position to pay in cash, a number of other countries would be prepared to provide it with a reactor. Neither the International Atomic Energy Agency, nor any country opposed to Islamabad's nuclear programme, would be able to hinder the deal. The real problem, the sources said, was lack of the availability of the required amounts in foreign exchange.

With the co-manufacturing concept, the sources said, Pakistan would be able to attain technology and capacity to manufacture reactors at one-tenth of the cost prevailing in the international market.

Official Restates Peaceful Use of Nuclear Energy
BK1505085889 Islamabad Overseas Service in English
0800 GMT 15 May 89

[Text] A 3-day seminar on modern trends in nuclear medicine began in Islamabad today. The seminar has been organized by the Pakistan Atomic Energy Commission in collaboration with the Federal German Nuclear Research Institute.

Inaugurating it, the chairman of the Pakistan Atomic Energy Commission, Mr Munir Ahmed Khan, said Pakistan believes in peaceful uses of atomic energy. Pakistan's entire nuclear program is designed to bring the benefits of peaceful atom to the people in areas like power generation, public health, agriculture, and industry. He said at present nine nuclear medical centers in the country are extending treatment facilities to over 160,000 patients annually.

Professor [name indistinct] of Federal Germany speaking on the occasion said it is necessary to reduce the gap in high technology between developed and developing countries.

PAEC Chief Asserts Goal of Indigenously Built Nuclear Plants

51004707 Peshawar *THE FRONTIER POST* in English
14 Apr 89 p 6

[Text] Islamabad—Pakistan is endeavouring to manufacture nuclear power plants through indigenous efforts, as well as with international cooperation. A nuclear plant acquired from abroad will be placed under the International Atomic Energy Agency safeguards.

This was stated by Mr Munir Ahmad Khan, chairman, Pakistan Atomic Energy Commission, while addressing the Japan Atomic Industrial Forum [JAIF] at Tokyo, recently. The chairman of PAEC said by the turn of the century Pakistan would be faced with a shortfall of 8,000 MW, which had to be met preferably by nuclear power which is "an economic and environmentally benign option."

Addressing the prestigious JAIF, Mr Khan said PAEC had called upon the developed nations of the world to respond to Pakistan's proposal for cooperation in nuclear field to help mitigate the problems of the developing countries by overcoming energy shortage.

He also referred to the declaration of Prime Minister Benazir Bhutto who had categorically stated during her visit to Japan in February last that Pakistan was committed to peaceful use of nuclear energy. She had said Pakistan was committed to peaceful use of nuclear energy. She had also declared that Pakistan neither wanted to conduct a nuclear explosion nor it intended to enrich uranium to weapons' grade.

Mr Khan observed that Pakistan believed in global nuclear disarmament and supported regional initiatives for nuclear non-proliferation. He referred to several proposals made by Pakistan on this issue including the establishment of a nuclear weapons free zone in South Asia, a proposal which has been overwhelmingly endorsed by the U.S. general assembly every year since 1974. Pakistan has already located sufficient uranium reserves to meet the near-term requirements of nuclear

fuel. The Commission was planning to use latest exploration techniques including satellite imagery for locating more promising deposits of nuclear minerals to meet its long-term needs, he added.

Mr Khan said that the PAEC was fully conscious of the requirements of nuclear safety at its various establishments. Pakistan, in this connection, has also sought help from the IAEA and international nuclear community, he added. The KANUPP safety has been regularly reviewed by the IAEA missions and locally fabricated fuel bundles have performed safely and satisfactorily in the KANUPP reactor. He said Pakistan was a member of various international organizations working to ensure and enhance safety of nuclear power plants. Pakistan was willing to share its modest operating experience with other developing countries and benefit from the knowledge and expertise available in the advanced countries, he added.

Chairman PAEC mentioned the useful applications of nuclear techniques in agriculture under PAEC. One of the major breakthroughs in this field of vital national significance was the evolution of better plant varieties of almost all important crops. A high-yielding cotton variety NAIB-78 evolved at Nuclear Institute for Agriculture and Biology (NAIB), Faisalabad gave a record output of 6.9 million bales out of a total cotton production of 9.5 million bales during 1987-88. Over the past five years NAIB-78 gave 25 to 30 per cent extra yields as compared to other cotton varieties and contributed an additional income of U.S. dollars 200 to other cotton varieties and contributed an additional income of U.S. dollars 200 to 300 million per year to the farmers.

Underscoring the pioneering role of the Commission's nine nuclear medical centers located in all the four provinces of the country, Mr Munir Ahmad Khan said that these centers specializing in the use of "radioisotopes" and "radiotherapy" for diagnosis and treatment of malignant diseases were providing services to more than 150,000 patients annually. PAEC was also planning to establish more similar medical centers in various parts of the country, he added.

'Deep Concern' Over Indian Missile Expressed
*BK1105153489 Islamabad Domestic Service in Urdu
1500 GMT 11 May 89*

[Text] A Foreign Office spokesman has expressed deep concern over the proposed launching of India's intermediate-range ballistic missile "Agni." The spokesman stated in Islamabad today that India's massive arms buildup, its nuclear program, and the development of long-range missiles cannot but strengthen the apprehensions and feelings of insecurity among other countries of the region.

The spokesman deplored the fact that India has embarked upon the development of new and lethal weapon systems in the region instead of responding

positively to concrete proposals for reducing defense expenditures and for keeping South Asia free of nuclear weapons.

The launching of the missile would have serious repercussions for the region and would pose a threat to regional security and to international peace and stability, the spokesman added.

Army Chief Justifies Concern Over Indian Missiles

*BK1305163089 Islamabad Domestic Service in English
1600 GMT 13 May 89*

[Text] The chief of the Army Staff, General Mirza Aslam Beg, has said Pakistan's concern over the Indian missile Agni is quite genuine. However, Pakistan has been able to acquire its own capability to counter such threats with the development of its series of missiles. Addressing officers of the School of Infantry and (?Tactics) in Quetta today, he said the threat to Pakistan from the Agni missile, which has a range of over 2,500 km, is not as relevant as the threat from [India's] Kirti missile having a range of over 300 km. He said Pakistan has a limited territorial gap and Kirti missile can reach targets in Pakistan, while Agni may be aimed at targets much beyond it, which could well be in China, Soviet Union, Iran, Saudi Arabia, and the (?Gulf).

About Afghanistan, General Aslam Beg was confident that the (?will) of the Afghan people will triumph. Now that the war of liberation is reaching its final and logical conclusion, it is the people of Afghanistan who have to settle the problems, he added.

DPRK Offers 'Explosive Chemical' to Pakistan
*BK2905150089 Delhi Domestic Service in English
1430 GMT 29 May 89*

[Text] Reports reaching New Delhi say that Pakistan has received offers from North Korea for supply of the highly explosive chemical, (Hexagen). The material is used in nuclear trigger devices, submarines, and for other military purposes. The report is one more confirmation of Pakistan's military-oriented nuclear program.

Heavy Water Leaks From Karachi Nuclear Plant
*BK1105090889 Delhi Domestic Service in English
0830 GMT 11 May 89*

[Text] In Pakistan, heavy water leaked from a defective valve at the Karachi Nuclear Power Plant. The country's Atomic Energy Commission, however, said that the water has no harmful radioactivity.

The leakage occurred on the 18th of last month and the plant has been shut down for inspection and maintenance.

The leak was said to have been caused by functional failure of a gasket in the valve.

Nuclear Plant's Heavy Water Leak Confirmed

Defective Valve Responsible

*BK1105160389 Islamabad Domestic Service in Urdu
1500 GMT 11 May 89*

[Text] The Pakistan Atomic Energy Commission [PAEC] has examined the causes of the defect in a valve at the Karachi Nuclear Power Plant [KANUPP], which had caused the leakage of heavy water. The defect was caused due to a sudden failure of a gasket in the valve. A PAEC spokesman told the Radio Pakistan correspondent in Islamabad today that the heavy water, which had leaked from the valve, was immediately collected and caused no harmful radioactivity. The collected heavy water will be purified in the purification unit for reuse when the plant becomes operational after inspection and repairs. The defective valve has been repaired, the spokesman added.

Senator Professor Khurshid Ahmad has demanded an immediate inquiry into the heavy water leakage at the KANUPP. He was talking to newsmen in Islamabad today.

Spokesman Cited on Leak

*BK1405085289 Islamabad Domestic Service in Urdu
0200 GMT 14 May 89*

[Text] A team of journalists visited the Karachi Nuclear Power Plant [KANUPP] yesterday and saw the welding on the bonnet of the moderator pump where the heavy water had leaked on 18 April due to the failure of the [word indistinct] gasket. The journalists also met with

the engineers who have repaired the defective part by replacing the gasket and recommissioned the emission valve of the moderator pump.

A Pakistan Atomic Energy Commission [PAEC] spokesman told newsmen that the heavy water leakage was extraordinary, but it does not endanger the environment or the health of the people. The leakage was stopped in about an hour. After examining the level of radioactivity, about 30 tons of the leaked heavy water was collected and is now being upgraded for reuse.

The PAEC spokesman disclosed that KANUPP was not operating at the time of the leak, because it had remained closed since July last year due to the shortage of certain spare parts.

Answering a question, the spokesman said under the [nuclear] safeguards agreement, a report of this incident has been sent to the International Atomic Energy Agency.

SAUDI ARABIA

Defense Ministry Denies Purchase of PRC Missiles

*LD2005210289 Riyadh Domestic Service in Arabic
2000 GMT 20 May 89*

[Text] Today's issue of the Kuwaiti daily AL-SIYASAH quoted the German [as heard] LA TRIBUNE newspaper as saying that the Kingdom and Syria have signed a trilateral agreement with the PRC to purchase M-9 surface-to-surface missiles and other Chinese ballistic missiles. The story also said that the Kingdom will fund the entire deal.

A responsible source at the Defense Ministry told SPA that there is no truth whatsoever to this story.

Nuclear Operators Conference Meets in Moscow

TASS Report
LD1505172389 Moscow TASS in English
1548 GMT 15 May 89

[Text] Moscow May 15 TASS—A founding conference of the World Association of Nuclear Operators has gathered in Moscow, addressing the participants. Lord Walter Marshal, chairman of Britain's Central Electricity Generating Board and co-chairman of the newly-founded World Association of Nuclear Operators, said that the convening of the meeting in Moscow was clear proof that the Soviet Union favoured international cooperation in nuclear energetics. He pointed out that the inauguration of the World Association of Nuclear Operators was an excellent example of East-West cooperation and a response to the policy of restructuring and openness in the field of nuclear energy.

All energy companies of the world ought to work in close cooperation and help each other in enhancing NPP [nuclear power plant] reliability and safety, to emulate positive experience and to avoid the mistakes of the past, Lord Marshall said. He said that the accidents in Windscale in Britain, at Three-Mile Island in the United States and in Chernobyl in the USSR had taught everyone this lesson.

The International Atomic Energy Agency (IAEA) and the World Association of Nuclear Operators will complement each other, Dr. Hans Blix, IAEA director-general, said addressing the conference. So far there are still serious discrepancies in the indicators of the NPP performance both between countries and on the national level. They have to do not with the type of the reactors used, but first and foremost with the quality of management and operation. That is why exchanges between the operating personnel of different NPP's are of such importance, which is what the World Association of Nuclear Operators proposes to organise. These exchanges will complement the IAEA's advisory services in the field of nuclear power safety.

Over 5,000 reactor-years of operation, accumulated in the world, represent a significant body of industrial experience while the record of nuclear energetics in terms of safety is not inferior to that in other energy fields, Hans Blix said. Still, however, the Three-Mile Island and Chernobyl accidents have confirmed many people in their apprehensions concerning nuclear power safety and only many years of safe NPP operation everywhere will help dispel public apprehensions.

The activities of the world association of nuclear operators will be of decisive importance for a continuous, expanded and safe utilization of nuclear energy, Hans Blix said.

30 Countries Attend

LD1505202789 Moscow Television Service in Russian
1430 GMT 15 May 89

[From the "Vremya" newscast]

[Excerpt] The constituent conference of the world association of organizations using atomic power stations took place in Moscow today.

Managers of large nuclear power engineering companies from over 30 countries are taking part in the forum's work. Comrade Ryzhkov sent a message of greetings to participants and guests of the conference. Today, 416 power units of atomic power stations are operating in 25 countries. They account for about 16 percent of the entire electric power generated in the world. Despite the fact that in the last few years a tendency toward reducing national programs for developing atomic power engineering has taken shape, atomic power engineering is developing quite rapidly. Thus, 108 power units are under construction. The new organization sees its task in coordinating the activity of all the firms and organizations which operate atomic power stations. [passage omitted] [video shows conference proceedings]

Shcherbina Addresses Forum

PM1705083389 Moscow PRAVDA in Russian
16 May 89 Second Edition p 4

[TASS report: "International Conference"]

[Text] Despite its youth, nuclear energy has become an independent sector of power production. It now generates approximately 16 percent of world electricity output. In addition to this, more than 100 nuclear power units are being built in many countries.

Mankind will be able to profit from the advantages of nuclear energy only if nuclear power station safety is maintained at the highest possible level. This thought was emphasized at an international conference which opened in Moscow 15 May and which will establish a worldwide association of organizations operating nuclear power stations. Its task is to organize on a world scale an exchange of experience of operating nuclear power stations and of joint efforts to raise their general safety to the level attained in the world's best nuclear stations.

The international forum, in whose work the leaders of large nuclear electricity companies from more than 30 countries are participating, was opened by N.F. Lukonin, USSR minister of nuclear power generation. He handed the floor to B.Ye. Shcherbina, deputy chairman of the USSR Council of Ministers. The Soviet Union, the speaker said, has always striven for broad cooperation with all countries and international organizations in the sphere of developing nuclear power. Without it mankind cannot resolve economic and ecological problems. The accident at Chernobyl and events at other nuclear power

stations have placed on the agenda the need to pool and channel the efforts of world science and technology into sharply improving the safety and reliability of nuclear power stations. The worldwide association being set up will devote its activity to this noble task.

Then B.Ye. Shcherbina read out the text of a greetings message from N.I. Ryzhkov, chairman of the USSR Council of Ministers, to the conference participants and guests.

The audience listened to N.F. Lukonin's report on the state of and the development prospects for nuclear power in the USSR. Lord W. Marshall, chairman of Britain's Central Electricity Generating Board, familiarized them with the work of the coordinating committee on preparing for the conference. H. Blix, director general of the International Atomic Energy Agency, delivered a report on the subject "International Cooperation in the Sphere of Further Improving the Safety and Operation of Nuclear Reactors."

Ryzhkov Message to Conference
*PM1705162989 Moscow PRAVDA in Russian
17 May 89 Second Edition p 1*

[N. Ryzhkov greetings message "To the Participants and Guests of the Constituent Conference of the World Association of Organizations Operating Nuclear Power Stations"]

[Text] I greet the participants and guests of the constituent conference of the World Association of Organizations Operating Nuclear Power Stations.

The creation of this nongovernmental organization reflects the positive processes which are taking place in the modern world. While giving credit to the actions being taken at parliamentary and intergovernmental levels to resolve many of the most important tasks of development and the safety of civilization, it is essential to stress also the significance of international cooperation from public and scientific organizations and business circles in this sphere.

We are living at a time when, for the first time in history, a process of the real reduction of nuclear arms has begun. But solving the most complex ecological and energy problems is no less significant for the future. The "greenhouse" effect, desertification, the deterioration of the ozone layer, and acid rain recognize no state boundaries and can be stopped only by all countries' joint efforts. In the world more and more power is consumed every year, and a further increase in its production entails increasing difficulties, which also requires the world community's combined forces.

Nuclear power makes it possible to satisfy mankind's power requirements in the foreseeable future without irreversible ecological infringements on his environment. But the extensive utilization of nuclear power

stations is possible only if their safety is guaranteed. Effective international cooperation, the constant exchange of experience, and mutual scientific and technical assistance can help to resolve this task successfully.

The Soviet Government sees the creation of the World Association of Organizations Operating Nuclear Power Stations as a significant step in uniting efforts to create an international system for the safe development of nuclear power.

I wish all the participants and guests of the conference fruitful work for the good of mankind, and in the interests of lasting peace and social progress.

[Signed] N. Ryzhkov, chairman of the USSR Council of Ministers.

Scientist Views Association
*LD1605192689 Moscow TASS in English
1848 GMT 16 May 89*

[Text] Moscow May 16 TASS—The creation of the World Association of Nuclear Operators is the right road to ensuring safe development of nuclear power on an international scale, Armen Abagyan, director of the All-Union Research Institute for the Maintenance of Nuclear Power Stations, told TASS. Abagyan is deputy chairman of the organising committee of the association's constituent conference, held in Moscow.

Abagyan expressed the confidence that the USSR's participation in this international organisation will have a practical effect in ensuring safe operation of nuclear power stations.

"The membership in the association presupposes first of all complete openness with regard to partners", the scientist said. "And this will help rightly to formulate the public opinion with regard to nuclear power".

"The Chernobyl accident will undoubtedly influence public opinion for long. at the same time, public opinion plays a positive role, helping enhance responsibility at all the stages of creation and maintenance of nuclear power stations".

Commission Confirms Semipalatinsk Radioactive Leak

Radio Report on Conclusions
LD1705202989 Moscow in English to Great Britain and Ireland 1900 GMT 17 May 89

[Text] The state commission which studied the radiation situation near the nuclear test site not far from the town of Semipalatinsk has drawn the conclusion that the partial leakage of inert radioactive gases that occurred during the underground testing on 12th February presents no danger to the local residents.

On the same day the gases which leaked to the surface were carried by the wind to a small town (?nearby). The commission stated that underground explosions cause no radioactive fallout. At the same time, taking into account the concern of the local residents, the commission recommended reducing the number of underground explosions and their yield.

'No Radioactive Contamination'

*LD1705223489 Moscow TASS in English
2200 GMT 17 May 89*

[Text] Moscow May 18 TASS—Radiation background in the testing ground near Semipalatinsk in the Kazakh Republic, where nuclear devices are tested, is on average about 17 microroentgen an hour which does not exceed the average figure of the natural background in the USSR (20 MCR/hour), Vladimir Bukatov said in an interview with a TASS correspondent. Bukatov heads a commission composed of officials from Soviet ministries and departments, checking the work of the testing ground.

The underground nuclear explosions conducted at present do not cause any radioactive contamination of the surface of the earth. And although radioactive inert gases may sometimes get out, in a matter of several days they become dissipated in the atmosphere and disintegrate, leaving no radioactive trace on the surface. This was the case on February 12 in the settlement of Komsomolskiy. The maximum aggregate dose of gamma radiation from the blast did not exceed 3 per cent of the annual dose from natural background, which is absolutely safe in terms of health.

At the request of the correspondent, Vladimir Bukatov commented [on] the creation in Alma-Ata of a new public movement called "Nevada" whose participants demand an end to nuclear tests in the area of Semipalatinsk. "For one and a half years our nuclear testing grounds were quiet unilaterally but, regrettably, the United States continued an intensive pursuit of their nuclear tests programme", he said. "As a result in the past four years we carried out less nuclear blasts than the United States by a factor of 1.5. In these conditions we cannot allow the interests of national security to be placed in jeopardy and so we are forced to continue our nuclear tests. The aspirations of the new public movement 'Nevada' quite accord with the desire of the Soviet Government to end nuclear explosions. The problem could be resolved once and for all if the United States agreed to end their nuclear tests".

Petrovskiy Meets With IAEA Director Hans Blix

*LD1605192289 Moscow TASS in English
1757 GMT 16 May 89*

[Text] Moscow May 16 TASS—Hans Blix, director-general of the International Atomic Energy Agency (IAEA), staying in Moscow in connection with the constituent conference of the World Association of Nuclear Operators, had a meeting on Tuesday with Vladimir Petrovskiy, USSR deputy foreign minister.

During a substantive exchange of opinions on various aspects of the activity of IAEA and its role in the system of international organisations, the Soviet side highly appraised the agency's efforts in implementing control over non-proliferation of nuclear weapons and establishing international cooperation in the area of peaceful uses of nuclear energy.

Special attention was given to the discussion of questions of safe development of nuclear power. The Soviet side emphasised the importance of efforts of the agency in the recent years to develop measures for the ensurance of safe operation of nuclear power stations which account for a considerable part of electricity generated the world over. Questions of using the experience and intellectual and technical potential of the agency in resolving problems of ensuring safety of nuclear power, establishing norms and standards for the maintenance of nuclear power stations as well as treatment of radioactive waste and its burial were discussed in this connection.

Hans Blix spoke about the efforts of IAEA in the area and shared his views about the agency's possible participation in working out problems of nuclear safety and improving the world ecological situation. He spoke highly of the Soviet Union's measures for improving safety standards of nuclear power stations, also with drawing in the services of IAEA experts.

Scientists Plan To Dismantle Chernobyl Plant

*LD1905184489 Moscow International Service in Italian
1900 GMT 17 May 89*

[Text] Soviet specialists have worked out a program to destroy the reactors wrecked at the Chernobyl nuclear power plant. As is known, the accident happened 3 years ago. Now the reactor is covered by a reinforced steel structure commonly known as the sarcophagus.

Views can be heard with increasing frequency asking for the sarcophagus to be destroyed and for the radioactive [indistinct word] to be expunged from the face of our planet. Various options for doing this as soon as possible and in the best possible way are being considered. It now seems that the specialists have devised the appropriate solution.

From the moral point of view we have been ready for quite some time now for this work, which requires a high level of responsibility, Yuriy Samoylenko, manager of the Spetsatom operations group, told us. We have already designed the equipment to dismantle the sarcophagus. We hope that in due course there will be a green meadow to replace it.

In addition to its psychological aspect, the problem of the dismantling of the sarcophagus has other aspects, too, especially financial. At the moment the maintenance of the protective structure can cost anything between R80 and 100 million per annum. If one considers that the sarcophagus has been planned and built to

last for decades it will not be difficult to understand what the cost of maintaining the sarcophagus throughout all those years will be. On the other hand, it is not certain that the sarcophagus could provide protection if anything unexpected happened.

There are quite a few people who disagree with the proposal to demolish the sarcophagus. The main argument of those opposing the idea concerns the risk. The supporters of the idea, on the other hand, maintain that it will be just as dangerous to keep the sarcophagus in its present state.

The dismantling will take 9-10 years. It will be divided into two stages. During the first stage it is proposed to (?raise) from the inside of the sarcophagus the remaining radioactive (?matter) and contaminated matter without, however, [words indistinct] inside. This job must be done by a robot. The machinery will (?lift bit by bit) the objects contained inside the sarcophagus and assemble them in the containers which will be then removed from the power plant area and buried in accordance with traditional practice. After that the dismantling of the sarcophagus itself will begin. From the technological point of view this operation can be regarded as traditional and much less dangerous than the construction of similar structures.

Leaders Queried on 'Neglect' of Chernobyl Problem

PM 150511189 Moscow KOMSOMOLSKAYA PRAVDA
in Russian 11 May 89 p 1

[Letter from writer and USSR people's deputy A. Adamovich to B. Ye. Shcherbina, deputy chairman of the USSR Council of Ministers, and N.F. Lukonin, minister of nuclear power generation: "A Cloud Marked 'Secret'"]

[Text] To Boris Yevdokimovich Shcherbina, deputy chairman of the USSR Council of Ministers and chairman of the Bureau for the Fuel and Energy Complex, and Nikolay Fedorovich Lukonin, minister of nuclear power generation.

I will begin with an explanation. On 26 April there was a "silent rally" in Minsk: At the behest of the Belorussian People's Front organizing committee thousands of people gathered outside Government House. They stood in silence for a whole hour. Forgive the informal style, but weren't your ministry's ears burning? Because, of course, it was in people's thoughts. For so many years the official authorities remained silent about the Chernobyl tragedy of our republic's inhabitants, about its scale, but when the press finally spoke out it was they, the Belorussians, who were so expressively silent....

Over the years the inhabitants of dozens of rayons had it dinned into them that only three Belorussian rayons had been affected, while in the rest everything was normal.

Then suddenly: "The thing is you cannot live here; sorry for keeping you here for 3 years. But at the moment we are still not able to resettle all of you. You have missed the boat. Money is tight, and then there was Armenia as well.... There is the Politburo resolution on additional aid for stricken Belorussia, but there just is not the money to resettle everyone right now...."

Here is one of the letters I have received, and I am not alone, of course.

"The inhabitants of the village of Samotevichi in Kostyukovichskiy Rayon, Mogilev Oblast, appeal to you to evacuate us from the stringent radiation regime zone as soon as possible.

"I will not dwell in detail on all the facts, since the Health Ministry has decided on our evacuation from the zone because to remain in this zone would endanger the health of the entire population.

"The level of contamination of our lands, that is, the area under crops, is between 45 and 100 curies and more per square kilometer. (The permitted norm is up to 15 curies—it would appear from scientists' tables—A. Adamovich). Our children were examined the other day. The examination found many sick children: first- and second-degree hypoplasia of the thyroid gland, enlargement of the lymph nodes, anemia, heart and nervous disorders. The doctors said that they must be evacuated immediately. But does the Health Ministry know about this? We were told at the oblast committee [obkom] that evacuation would take place in 2-3 years' time. But it is too late already to evacuate, quite apart from having to wait another 3 years. If people's health is under threat they must be moved into other rayons, into farms where there is housing. We believe such farms exist. And we will go anywhere if only to preserve our children's health and live a little longer for our children's sake. Let them pay us compensation for our homes and we will find work for ourselves wherever we can.

"We have written many letters about this to various authorities, to the Red Cross society commission, to the Mother and Child Protection Office, and other bodies, but there has been no answer so far.

"Yet the whole world responded to the Armenian disaster. They are building for them, but no one is building here, because our people are working in Armenia.... [Signed] "Ye.M. Rudenko, writer of the letter, and other inhabitants."

So, I have the following questions:

1. Is it true what the people of Mogilev Oblast believe (and this is confirmed by respectable scientists) that rayons of Mogilev Oblast remote from Chernobyl—Krasnopol'skiy, Slavgorodskiy, Cherikovskiy, part of Kostyukovichskiy, Bykhovskiy, Klimovichskiy, and some others (also some rayons in Bryansk Oblast)—

received such a dangerous dose of radiation because the Chernobyl cloud was "dropped" on them? They shot at it and brought it down. The cloud that was headed for Moscow. Well, the capital and its 8 million people had to be saved from the "peaceful atom." It had to be saved. But so do the inhabitants of the rayons which were landed with someone's else's disaster. And not 3 years later. But since those 3 years have passed, one must not delay a minute longer. As for money, we all know how drastic that situation is. We know that and that is why this is not only a question, but a request.

2. In other countries the procedure is: You have poisoned, you have contaminated, so you pay, you compensate for the damage. That is why in neighboring Finland there is nothing like what is happening in Ladoga; although the timber and pulp industry there is no match for ours, it sustains the country.

Since we are becoming a rule-of-law state, then you, the ministry of the "peaceful atom," are obliged to provide the billions to save children's "lymph nodes" and "thyroids" in Mogilev, Gomel, and Bryansk Oblasts. You will ask: Where do we get the money? In other countries the answer would be: Get it wherever you can. But one can help, offer some advice: Do not build one or two nuclear power stations—then fewer will have to be closed! (And closing them is no cheaper than building them). It would seem appropriate then to call the Nuclear Power General Ministry the ministry for dismantling nuclear power stations. Why it has come about is a separate question.

The question here is: Does your department agree to shoulder the financial part of the burden of the disaster which it brought down on the heads of the totally innocent inhabitants of hundreds of villages and towns?

3. The situation in which the people of the abovementioned rayons (and many rayons not mentioned here) find themselves is the result not of any recent step to make all and everything secret, but in particular where there is a whiff of departmental license. We have already decided (and it is to be hoped that this will be reflected in the work of the Congress of People's Deputies and in the legislative acts of the new Supreme Soviet) that concealment of necessary information from the country, from citizens, and sometimes from the government itself, resulting in grave consequences, is a crime of office and even a crime against the state.

In view of what I have said, my question to you, the leader of nuclear power generation, is: Who personally is to blame, or what components of the apparatus, yours or any other, are to blame for what has happened, and must answer for such an inexcusable 3-year period of neglect of the health and interests of thousands and thousands of people? Or, if you want to be more polite: How come what happened happened?

[Signed] A. Adamovich, writer and USSR people's deputy.

The editorial board is prepared to allocate space in the newspaper for a reply to the matters raised by the deputy.

Repeat Tests Performed on Zaporozhye Reactor
PM1605145189 Moscow IZVESTIYA in Russian
16 May 89 Morning Edition p 2

[Report by R. Ignatyev under the rubric "Fact and Commentary": "Tests on Reactor"]

[Text] The state commission has decided to carry out repeat tests on the fifth reactor at the Zaporozhye nuclear electric power station [AES].

The station's latest unit is one of the so-called million-kilowatters ["millionniki"]. It was installed very belatedly. There have been difficulties. IZVESTIYA No 135 wrote that permission had been given to load fuel into the fifth reactor of the Zaporozhye AES. But we were informed from the USSR State Committee for the Supervision of Safe Working Practices in the Atomic Power Industry [Gosatomenergonadzor] that this operation had had to be deferred. The point is that the USSR Gosatomenergonadzor failed to receive convincing confirmation of the reliability of some of the unit's equipment and systems ensuring the safety of the Zaporozhye AES. The state commission then decided to carry out repeat tests on individual types of equipment and elements of the reactor's technological systems.

In contrast to previous units this "million-kilowatter" is distinguished by the fact that it was installed in accordance with a strict procedure aimed at increasing safety. In this connection additional work costing R15 million has been carried out.

After the tests on the bloc have been completed and the data have been carefully analyzed and if positive results have been obtained, the matter of loading it with fuel will be examined. With the commissioning of the latest reactor electricity from it will start to reach the industrial enterprises of Zaporozhye and the Donbass. According to the plan it is intended to construct a sixth unit of increased safety. Its yield will also be 1 million kilowatts.

Loading of Fuel Begins at Zaporozhye Plant
PM1605115389 Moscow IZVESTIYA in Russian
15 May 89 Morning Edition p 1

[I. Bilyk dispatch: "The Cost of Reliability"]

[Text] Energodar, Zaporozhye Oblast—The State Commission has authorized the loading of fuel in the No 5 reactor at the Zaporozhye Nuclear Electric Power Station [AES].

Construction and installation workers delayed for almost 5 months the commissioning of the latest power unit, whose capacity is double that of the Dneproges power complex. But this is only to their credit. The point

is that, following the well-known tragic events at the Chernobyl AES, the condition of AES safety systems in the country is undergoing a serious review. The model 1000 water-cooled, water-moderated reactors are more reliable and fundamentally different from those in use at Chernobyl. Nonetheless, the construction of Zaporozye's latest "million kilowatter" was subjected to thorough analysis. Amendments aimed at enhancing safety were made to the blueprints while construction was already under way.

"The Zaporozye AES Construction Administration collective," Chief Engineer V. Dudnik said, "jointly with the umbrella 'Atomenergoprojekt' Institute and the specialized installation organizations, carried out additional work worth R15 million. These additional costs will be recouped through accident-free operations."

The State Commission accepted the power unit without any remarks. The physical startup of the No 5 power unit, which began with the loading of fuel, will last 39 days and nights.

Radioactive Waste Apparently Dug Up in Irkutsk
18220125 Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 May 89 p 2

[Article by I. Shirobokov: "How Rumors Are Born"]

[Text] Containers of radioactive waste were dug up 20-30 meters from the windows of the Irkutsk Polytechnical Institute. They had lain in the ground approximately 7-15 years.

The concern of the institute's associates was aroused, as people had worked for years in such dangerous proximity. Many recalled that mushrooms had grown luxuriantly on this patch; the experts had considered this plot to be their "own" and "specially fed."

How can such a thing have happened, how great is the danger, and who is to blame?

In time, competent organs must name the culpable. As far as the rest is concerned....

I inquired at the organization which conducted the excavation.

"Yes," states V. Litvinsev, chief of the geological production association. "We did the work; the containers and earth were taken away. But I am forbidden to give information, there is an order on this from Comrade Platonov."

I call the first deputy chairman of the oblast executive committee, chief of the economic planning administration L. Platonov, not comprehending how the chief of the economic planning administration had become a leading specialist in radiation....

The secretary invariably answered, "He's at a plenum...at the office...he's left for the day."

It is not the journalist's place to go running after officials, but to hurry them to prevent rumors. And the institute trade union must concern itself first and foremost with the health of its associates, and to obtain the appropriate expertise and investigation. But nothing of the kind occurred.

It is completely possible that the radiation level was meager and there is no cause for alarm. That is probably exactly how it is. But the alarm remains. How long will it be decided in offices how big a dose of the truth will be told, and whether it will be told at all?

International Experts To Evaluate Ignalina AES
LD1505132089 Vilnius TIESA in Lithuanian
17 Mar 89 p 1

[Report of interview with Vytautas Sakalauskas, chairman, Lithuanian SSR Council of Ministers, by TIESA Correspondent Vilius Kavaliauskas; date and place not given: "Concerning International Experts Commission For Ignalina AES."]

[Text] People in the republic continue to express concern over Ignalina nuclear electric power station [AES], questioning its reliability; they reproach union administrators for not giving sufficient attention to the power plant's safety. Skeptics can be heard who assert that nothing is being done to arrange evaluation by foreign experts of its reliability, and questions are being raised concerning the qualifications of such experts. Some are even attempting to exploit this issue in the election campaign.

What is being done, or has been already accomplished, in investigating Ignalina AES safety? TIESA correspondent Vilius Kavaliauskas asked Vytautas Sakalauskas, chairman of the Lithuanian SSR Council of Ministers, to answer this question. His official answer follows:

As has been previously announced in the press, the Lithuanian Soviet Socialist Republic [SSR] Government has sent a request to USSR Council of Ministers Chairman N. Ryzhkov to invite TATENA [UN International Atomic Energy Agency] experts to evaluate the safety of the Ignalina AES's operational units. The USSR Government has backed our request.

The process of this type of expert investigation constitutes a substantial and responsible undertaking. The experts will require suitable working conditions, and the preparation of considerable technical documentation and standard acts in English, etc. The cost will amount to several hundred thousand dollars.

The USSR Government and TATENA have agreed to have an expert of this organization visit Ignalina AES on July 4 of this year, to acquaint himself with the station's prospectus (a text of about 150 pages in English), and will finalize a program for the expert commission's work.

According to our current information, the main group, consisting of 7 commission experts, is to arrive on November 20 of this year. It is projected that it will include, in addition to TATENA experts, some specialists from the US, England, Finland and Spain. They will analyze the power station's operation and breakdown causes; they will pinpoint shortcomings and evaluate operational safety, as well as establish which areas will need improvement. This operation is projected to last 2-3 weeks.

Crimea Oblast Wants AES Construction Ended
*18220115 Moscow SOTSIALISTICHESKAYA
INDUSTRIYA in Russian 4 May 89 p 2*

[Article by TASS correspondent L. Ryabchikov: "How To Protect the Crimea?"]

[Text] An important decision was adopted at the session of the Crimea Oblast soviet. The deputies recognized the necessity of stopping the construction of a nuclear power plant right next to the health resorts and requested that the USSR Council of Ministers review the question of reprofiling it as a training center for power engineers. The suggestion to extend the status of an all-union health center to the whole peninsula was also brought up.

For a long time the troublesome symptoms of a general "unhealthiness" of the environment were simply not noticed. Such a practice led to the fact that Yalta, due to its air pollution, was crossed off the list of world-renowned health resorts. The sources of curative mud are perishing in the Yevpatoriya and Saki recreational zones. The concentration of harmful substances and admixtures in the lakes greatly exceeds the permissible norms. Birds and insects fly past Prisivash, where the wastes from "big chemistry" enterprises are discharged. They have "added" to the peninsula's unique monuments of nature only one sad object of economic activity—the country's largest hoard of sewers containing sulfuric acid. The concentration of such solutions increases every year. Are the acid rains gathering strength here, recently pelting the Crimea's gardens and plantations? Transport is literally poisoning the air. Up to half a million out-of-town passenger cars join the stream of traffic from the very beginning of the health resort season.

The startup of a nuclear power plant would aggravate the ecological situation. How is it possible to build such a facility in a protected region, where people come to recuperate and rest? More than 300,000 inhabitants of the Crimea signed a petition against construction of the power station.

V. Saratovskiy, vice-president of the local association "Ecology and Peace" and a professor at Simferopol University, spoke about the need to develop a unified concept on the reconstruction of the Crimea as a unique nature and cultural-historic complex.

FEDERAL REPUBLIC OF GERMANY

Aeronautics Firm Denies Project With Romania
LD0805165189 Hamburg DPA in German
1506 GMT 8 May 89

[Excerpt] Ottobrunn (DPA)—There have been "no contacts" between the aeronautics and astronautics concern Messerschmitt-Boelkow-Blohm (MBB), Ottobrunn, and Romania on the Condor medium-range missile

project. The report in the 'DER SPIEGEL' news magazine, which said that MBB missile technology for the construction of a factory for nuclear-capable medium-range missiles had been exported from Argentina via Egypt and Iraq to Romania "is regarded by MBB as highly speculative." This was stated by an MBB spokesman on Monday in response to an inquiry. Referring to the fact that there is court case pending, the MBB spokesman refused to make any further comment on the Condor project. [passage omitted]

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